Lefter to the Editor

The effective cost of healthy diet

Dear Editor,

The epidemiological transition and the increase of non-communicable chronic degenerative diseases (CNCD) need to make the National Health System (NHS) sustainable¹.

An increase in the consumption of healthy diet, based on a diversity of plant-based foods, typical products of the Mediterranean Diet² and a low amounts of animal source foods, with a limitation greater than 50% of less healthy foods, such as added sugars and processed meat³, are recommended.

As underlined by the EAT-Lancet Commission, feeding 10 billion people with a healthy diet, within the safe planetary limits for food production, is a condition both possible and necessary to be implemented within 2050³.

However, according to Hirvonen et al⁴, at least 1.58 billion people cannot afford the diet, healthy and sustainable, described by the EAT-Lancet Commission. In fact, the 'ideal diet', which would be desirable to reach by 2050, would keep people and the planet healthy, with an average cost of \$ 2.84 per person per day. With this cost at almost 90% of a family's daily per capita income, the healthy diet would not be feasible for nearly 1.6 billion people, especially in sub-Saharan Africa and South Asia⁴.

To these statements it can easily be objected that it is known that the global food system today is not sustainable, both in environmental terms than in human health. A diet should ensure, beyond the environment, a correct nutritional level and guarantee the state of health. Moreover, food prices should be analyzed both in terms of impact on sustainability and impact on health.

One of the most effective tools for CNCDs prevention is personalized diet therapy.

Mediterranean Diet is an example of accessible diet⁵. Mediterranean food mode, with Adequacy Index (MAI) >7 units, has low-cost, and it is socially acceptable at a global level Mediterranean⁶.

Dramatically, MAI has shrunk all over the world, and in Italy, where the Mediterranean Reference Diet was born⁷.

In parallel with the MAI reduction, an increase in the consumption of junk and ultra-processed food was observed. It is estimated that a 10% consumption compared to the daily calories increases the mortality risk by 14%8. It has been observed that adherence to the Mediterranean pattern is inversely proportional to the availability of ultra-processed foods in the home9.

The promotion of nutrition according the Mediterranean diet¹⁰, recognized as healthy diet prototype, is fundamental to improve the health status of the population and reduce health costs, an important strategy for the high ethical value and sustainability of the system.

Conflict of Interest

The Authors declare that they have no conflict of interests.

References

 LICHER S, HESHMATOLLAH A, VAN DER WILLIK KD, STRICKER BHC, RUITER R, DE ROOS EW, LAHOUSSE L, KOUDSTAAL PJ, HOFMAN A, FANI L, BRUSSELLE GGO, Bos D, ARSHI B, KAVOUSI M, LEENING MJG1, IKRAM MK, IKRAM MA. Lifetime risk and multi-morbidity of non-communicable diseases and disease-free life expectancy in the general population: a population-based cohort study. PLoS Med 2019; 16: e1002741.

- 2) DI RENZO L, GUALTIERI P, ROMANO L, MARRONE G, NOCE A, PUJIA A, PERRONE MA, AIELLO V, COLICA C, DE LORENZO A. Role of personalized nutrition in chronic-degenerative diseases. Nutrients 2019; 11: E1707.
- 3) WILLETT W, ROCKSTRÖM J, LOKEN B, SPRINGMANN M, LANG T, VERMEULEN S, GARNETT T, TILMAN D, DECLERCK F, WOOD A, JONELL M, CLARK M, GORDON LJ, FANZO J, HAWKES C, ZURAYK R, RIVERA JA, DE VRIES W, MAJELE SIBANDA L, AFSHIN A, CHAUDHARY A, HERRERO M, AGUSTINA R, BRANCA F, LARTEY A, FAN S, CRONA B, FOX E, BIGNET V, TROELL M, LINDAHL T, SINGH S, CORNELL SE, SRINATH REDDY K, NARAIN S, NISHTAR S, MURRAY CJL. FOOD in the Anthropocene: the EAT-Lancet commission on healthy diets from sustainable food systems. Lancet 2019; 393: 447-492. Erratum in: Lancet 2019; 393: 530. Erratum in: Lancet 2019; 393: 2590.
- 4) HIRVONEN K, BAI Y, HEADEY D, MASTERS WA. Affordability of the EAT-Lancet reference diet: a global analysis. Lancet Glob Health 2020; 8: e59-e66.
- 5) D'Innocenzo S, Biagi C, Lanari M. Obesity and the Mediterranean diet: a review of evidence of the role and sustainability of the Mediterranean diet. Nutrients 2019; 11: E1306.
- 6) DI RENZO L, RIZZO M, IACOPINO L, SARLO F, DOMINO E, JACOANGELI F, COLICA C, SERGI D, DE LORENZO A. Body composition phenotype: Italian Mediterranean diet and C677T MTHFR gene polymorphism interaction. Eur Rev Med Pharmacol Sci 2013; 17: 2555-2565.
- 7) DA SILVA R, BACH-FAIG A, RAIDÓ QUINTANA B, BUCKLAND G, VAZ DE ALMEIDA MD, SERRA-MAJEM L. Worldwide variation of adherence to the Mediterranean diet, in 1961-1965 and 2000-2003. Public Health Nutr 2009; 12: 1676-1684.
- 8) FIOLET T, SROUR B, SELLEM L, KESSE-GUYOT E, ALLÈS B, MÉJEAN C, DESCHASAUX M, FASSIER P, LATINO-MARTEL P, BESLAY M, HERCBERG S, LAVALETTE C, MONTEIRO CA, JULIA C, TOUVIER M. Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort. BMJ 2018; 360: k322.
- 9) Monteiro CA, Moubarac JC, Levy RB, Canella DS, Louzada MLDC, Cannon G. Household availability of ultra-processed foods and obesity in nineteen European countries. Public Health Nutr 2018; 21: 18-26.
- 10) De Lorenzo A, Bernardini S, Gualtieri P, Cabibbo A, Perrone MA, Giambini I, Di Renzo L. Mediterranean meal versus Western meal effects on postprandial ox-LDL, oxidative and inflammatory gene expression in healthy subjects: a randomized controlled trial for nutrigenomic approach in cardiometabolic risk. Acta Diabetol 2017; 54: 141-149.

L. Di Renzo¹, P. Gualtieri¹, A. de Lorenzo¹, A. Capacci², G. Merra¹

¹Section of Clinical Nutrition and Nutrigenomic, Department of Biomedicine and Prevention,
University of Rome Tor Vergata, Rome, Italy

²Department of Gastroenterological, Endocrine-Metabolic and Nephro-Urological Sciences,
Agostino Gemelli General Hospital Foundation-IRCCS, Rome, Italy